BOTANY.—*Additions to the grass flora of British Honduras.*[1] JASON R. SWALLEN, Bureau of Plant Industry.

Since the publication of "The Grasses of British Honduras and the Petén, Guatemala,"[2] two collections have been made in British Honduras which add many grasses to the flora. One of these was made by Rev. Dr. Hugh O'Neill in the Belize District, and the other by C. L. Lundell in the El Cayo District.

Several of the species in these collections were found for the first time outside of the United States, some are South American not before known from North America, others are Eastern United States and West Indian species found for the first time in Central America, while the rest were to be expected in British Honduras but have not previously been reported. There are also six species new to science.

Arthrostylidium spinosum Swallen, sp. nov.

Culmi scandentes, 5–15 m longi, ramis spinosis; vaginae (ramulorum) internodiis longiores, glabrae, fimbriatae, marginibus ciliatis; ligula firma, 0.2 mm longa; laminae lineares, 10–25 cm longae, 5–8 mm latae, infra glabrae, supra pubescentes, marginibus hispidis; paniculae rami curtissimi densi, axe curto pubescente; spiculae 3–10 cm longae, cylindricae, patentes vel adscendentes; glumae curtissimae; lemmata inferiora reducta; lemma flosculorum fertilium amplexans 15–18 mm longum, ad 7 mm latum, multinervium, acutum, aristatum; palea 10 mm longa, inter carinas ciliata, 1.5–2 mm lata, pubescens, marginibus latissimis 3-nerviis; stamina 3, 5–7 mm longa.

Culms clambering, 5–15 m long, hollow, thick walled, branching, the branches as much as 8 mm thick, with a solitary conspicuous spine (rarely two) and a dense fascicle of slender, stiff, leafy branchlets at each node; sheaths (of the branchlets) overlapping, the margins densely short ciliate, otherwise glabrous, with slender erect to flexuous fimbriae 2–3 mm long on the truncate shoulder; ligule firm, about 2 mm long; blades deciduous, linear, 10–25 cm long, 5–8 mm wide, firm, pungent, abruptly rounded at the base into a minute pedicel, scaberulous on both surfaces, often pubescent on the upper, the margins appressed hispid; panicles at the ends of leafy or nearly leafless branchlets, the branches very short, crowded on the short, pubescent axis; spikelets 3–10 cm long, about 2.5 mm thick, cylindric; glumes very small, scale like; rachilla joints striate, about half as long as the lemmas; lower lemmas much reduced, many-nerved, mucronate; fertile lemmas 15–18 mm long, as much as 7 mm wide clasping the base of the one above, many nerved, acute, aristate, the slender awns 3–5 mm long; palea 10 mm long, 1.5–2 mm wide between the ciliate keels, pubescent, the margins 3-nerved, glabrous, overlapping enclosing the flower; stamens 3, 5 mm long.

Type in the U. S. National Herbarium no. 1649171 collected along the Belize River at El Cayo, El Cayo District, British Honduras, June-August, 1936, by C. L. Lundell (no. 6939).

[1] Received November 16, 1937.

[2] SWALLEN, JASON R. Carnegie Inst. Washington Publ. **461**: 143–189. 1936.

This species of *Arthrostylidium* differs from all others in having prominent spines at nearly all the nodes. In this respect it resembles *Guadua*, but in that genus the florets have six stamens and the palea is winged, while in *Arthrostylidium* there are only three stamens and the palea is wingless.

Fournier[3] described *Chusquea spinosa* from sterile material collected in Oaxaca by Liebmann (no. 130). This appears to be the same species as the one described above, but since there were no flowering specimens, it can not definitely be determined.

ERAGROSTIS HIRSUTA (Michx.) Nees. Locally abundant in sandy pine-oak uplands, San Agustin, Mountain Pine Ridge (*Lundell* 6738). First record outside of the United States. Dry fields and open woods, southeastern United States and British Honduras.

TRIPLASIS PURPUREA (Walt.) Chapm. On the strand, Puerto Cortez, Honduras (*O'Neill* 8423). First record outside of the United States. Open sandy ground, eastern United States and Honduras. Although not properly belonging to the flora of our region, this species is noted here because of the great extension of range which the above collection records.

ARISTIDA IMPLEXA Trin. Locally abundant in sandy pine uplands, San Agustin, Mountain Pine Ridge (*Lundell* 6904). Plains, rocky slopes and pine woods, British Honduras, Salvador, and Panama; Brazil to Paraguay.

ARISTIDA PURPURASCENS Poir. In tropical pineland, Old Hector Creek (*O'Neill* 8438). First record outside of the United States. Dry sandy soil, eastern United States and British Honduras.

ARISTIDA LONGIFOLIA Trin. Rare in wet sand at edge of stream, Rio On, Mountain Pine Ridge (*Lundell* 6801). First record from North America. Sandy, open or brushy ground, British Honduras; eastern Brazil.

ARISTIDA TENUISPICA Hitchc. Common in sandy pine uplands. San Agustin, Mountain Pine Ridge (*Lundell* 6815). First record outside of Florida. Pine woods, southern Florida and British Honduras.

Digitaria multiflora Swallen, sp. nov.

Annua; culmi graciles, erecti, simplices vel ramosi, glabri; vaginae internodiis longiores, carinatae, glabrae, basi in marginibus sparse pilosae; ligula membranacea, 2–3 mm longa; laminae planae, acuminatae, 10–28 cm longae, 4–8 mm latae, glabrae vel scaberulae, supra sparse papilloso-hirsutae, marginibus scabris; racemi 8–25, 6–15 cm longi, graciles, adscendentes; pedicelli teretes glabri vel sparse scabri 1–4 mm longi; spiculae 1.2 mm longae ternatae; gluma prima obsoleta; gluma secunda 1 mm longa, acuta, 3-nervia, inter nervos et in marginibus dense pubescens; lemma sterile quam lemma fertile paulo brevius, acutum, 3-nervium, inter nervos et in marginibus sparse vel dense pubescens; lemma fertile 1.1 mm longum, acutum, fuscum, striatum.

Annual; culms slender, erect, simple or sparingly branched, 50–115 cm tall, glabrous; sheaths longer than the internodes, keeled, glabrous, the margins more or less pilose or ciliate toward the base; ligule membranaceous, brownish, 2–3 mm long; blades flat, acuminate, 10–28 cm long, 4–8 mm wide, smooth or scaberulous on both surfaces, sparsely papillose-hirsute on the upper at least toward the base, the margins scabrous; axis of the inflorescence 8–15 cm long; racemes 8–25, 6–15, cm long, slender, ascending or

[3] FOURNIER in Hemsl. Biol. Centr. Amer. Bot. 3: 587. 1885.

sometimes spreading, rather evenly scattered along the axis, the rachis wingless, 0.3 mm wide, the margins scabrous; spikelets 1.2 mm long, in groups of 3 or 4, the unequal pedicels terete, glabrous or sparsely scabrous, 1–4 mm long, somewhat spreading; first glume obsolete or nearly so; second glume 1 mm long, acute, narrower than the fruit, 3-nerved, with dense lines of white pubescence on the internerves; sterile lemma a little shorter than the fruit, acute, 3-nerved, pubescent like the second glume but the hairs shorter, sometimes nearly wanting on the internerves; fruit 1.1 mm long, extending slightly beyond the second glume and sterile lemma, acute, dark brown, striate.

Type in the U. S. National Herbarium no. 1647576 collected in sandy pine-oak uplands, San Agustin, Mountain Pine Ridge, El Cayo District, British Honduras, July-August, 1936, by C. L. Lundell (no. 6730).

The usually numerous spreading racemes with many minute spikelets are characteristic.

Digitaria cayoensis Swallen, sp. nov.

Annua; culmi erecti vel adscendentes, ramosi, 80 cm alti, glabri; vaginae internodiis longiores, dense hirsutae; laminae planae, acuminatae, ad 16 cm longae, 3–5 mm latae, scabrae, supra sparse pilosae; racemi 6–8, graciles, adscendentes, 8–12 cm longae; spiculae 1.5–1.6 mm longae, ternatae, pedicellis subplanis, scabris, 1–3 mm longis; gluma prima obsoleta; gluma secunda 1.3 mm longa, acuta, 3-nervia, inter nervos et in marginibus dense pubescens, pilis apice glumae paulo longioribus; lemma sterile quam lemma fertile paulo longius, 3-nervium, inter nervos et in marginibus pubescens, pilis quam pilis glumae secundae brevioribus; lemma fertile 1.4–4.5. mm longum, fuscum, acutum, striatum.

Annual; culms erect or ascending, sometimes geniculate and rooting at the lower nodes, freely branching, as much as 80 cm tall, glabrous; sheaths longer than the internodes, rounded, or keeled only toward the summit, densely hirsute, or the uppermost nearly glabrous, the hairs ascending or spreading; blades flat, acuminate, as much a 16 cm long, 3–5 mm wide, scabrous, the upper surface very sparsely pilose; axis of inflorescence 5–8 cm long; racemes slender, ascending, 8–12 cm long, pilose in the axils, the rachis 0.3 mm wide, the very narrow margins scabrous; spikelets 1.5–1.6 mm long, in groups of three, the unequal pedicels flattened, scabrous, 1–3 mm long; first glume nearly obsolete; second glume about 1.3 mm long, acute, 3-nerved, with dense lines of white hairs on the internerves and margins, the hairs near the tip somewhat longer than the others, extending slightly beyond the glume; sterile lemma a little longer than the fruit, 3-nerved, densely pubescent in lines on the internerves and margins, the hairs shorter than those on the second glume; fruit 1.4–1.5 mm long, dark brown, striate.

Type in the U. S. National Herbarium no. 1647578, collected in soil pockets in granite in stream-bed, San Agustin, Mountain Pine Ridge, El Cayo District, British Honduras, July-August, 1936, by C. L. Lundell (no. 6670).

This species is closely allied to the preceding but differs in having fewer racemes and larger spikelets, the pedicels of which are flattened and scabrous instead of terete and nearly glabrous.

Known also from Pocoboch, Yucatan (*Gaumer* 2494). This specimen was previously referred to *Digitaria filiformis*.

PASPALUM BLODGETTII Chapm. Locally abundant, San Agustin, Mountain Pine Ridge (*Lundell* 6714). Open or brushy places, southern Florida, the West Indies, Yucatan, Honduras and British Honduras.

PASPALUM CLAVULIFERUM Wright. On pine ridge. Maskall (*O'Neill*, 8451). Moist open ground and waste places, southern Mexico and the West Indies to Brazil.

PASPALUM CORCOVADENSE Raddi. Occasional at San Agustin, Mountain Pine Ridge (*Lundell* 6640). Native of Brazil; new to North America.

PASPALUM CORYPHAEUM Trin. Rare in wet sand of stream bed, Rio On, Mountain Pine Ridge (*Lundell* 6784). First record north of Panama. Savannas, brushy slopes, and river banks, British Honduras and Trinidad to Brazil.

PASPALUM NUTANS Lam. Rare, Cohune Ridge (*Lundell* 6525). Shady slopes, Central America and the West Indies to Brazil.

PASPALUM PILOSUM Lam. Locally abundant, Vaquero, Mountain Pine Ridge, (*Lundell* 6877). Occasional, San Agustin, Mountain Pine Ridge (*Lundell* 6659). Wooded slopes and brushy savannas, British Honduras to Bolivia and Brazil.

PASPALUM REPENS Berg. Deep water, Mussell Creek, 5 miles west of Boomtown, (*O'Neill* 8461A.). Floating in streams and ponds, southern United States to Paraguay.

PANICUM AGROSTOIDES Spreng. New River at Orange Walk, (*O'Neill* 8505). First record outside of the United States. Wet ground, eastern United States and British Honduras.

Panicum lundellii Swallen, sp. nov.

Perenne, glaucum; culmi erecti, crassi, rhizomatosi 2.5 m alti, glabri; vaginae purpurascentes, glabrae, marginibus ciliatus; ligula ciliata, 2 mm longa; laminae planae, attenuatae, 40–70 cm longae, 15–20 cm latae, glabrae, marginibus hispido-serratis; panicula 35 cm longa, ramis adscendentibus ad 15 cm longis, in parte inferiore nudis; spiculae 4–4.5 mm longae, glabrae; gluma prima acuta vel acuminata, 2.5–3 mm longa, 3-nervia; gluma secunda acuminata, 4–4.5 mm longa; lemma sterile acutum, 3–3.5 mm longum, obscure 5–7 nervium; fructus ellipticus, 2.5 mm longus, 0.9 mm latus, albescens.

Perennial, glaucous. Culms coarse, erect, 2.5–3 m tall, as much as 9 mm thick at the base, producing short rhizomes, glabrous; sheaths glabrous, or the margins ciliate, mostly a little shorter than the long internodes, deeply tinged with purple especially near the nodes; ligule ciliate, about 2 mm long; blades firm, flat, narrowed toward the base, attenuate-pointed, 40–70 cm long, 15–20 mm wide, glabrous, the margins hispid-serrate; panicle about 35 cm long, the branches narrowly ascending, naked in the lower half, the lower as much as 15 cm long; pedicels terete, glabrous, 1–5 mm long; spikelets 4–4.5 mm long, glabrous, usually tinged with purple; first glume rather abruptly acute or acuminate, 2.5–3 mm long, 3-nerved; second

glume abruptly acuminate, 4–4.5 mm long, 5-nerved; sterile lemma 3–3.5 mm long, acute, 5–7 nerved, the nerves rather obscure especially toward the base; fruit (immature) 2.5 mm long, 0.9 mm wide, elliptic, blunt, whitish.

Type in the U. S. National Herbarium nos. 1647561 and 1647562, collected in wet alluvial lowland, along Mahogany Creek, Mountain Pine Ridge, El Cayo District, British Honduras, July-August, 1936, by C. L. Lundell (no. 6903).

Panicum lundellii is closely related to *Panicum virgatum* L., but differs in having much stouter culms, which root at the lower nodes, and usually broader blades. The base of the type specimen is incomplete, there being only an extravaginal bud, which would indicate the plant produces rhizomes, but it is impossible to determine whether they are long or short. It seems probable, however, that they are much shorter than those of *P. virgatum.*

Panicum neuranthum Griseb. Edge of creek near Salt Creek (*O'Neill* 8454). Open ground, southeastern United States, the West Indies, and British Honduras.

Panicum parviglume Hack. Occasional in patches, open places at top of limestone hill, San Agustin, Mountain Pine Ridge (*Lundell* 6809). This specimen differs from the typical form in having blades densely pubescent beneath. Along banks and ditches, Mexico to Costa Rica.

Panicum patulum (Scribn. & Merr.) Hitchc. In tropical pineland, Boomtown (*O'Neill* 8430). Low woods, southeastern United States, Hispaniola, and British Honduras.

Panicum polycaulon Nash. In tropical pineland, Boomtown (*O'Neill* 8480). Sandy pine woods, southeastern United States, the West Indies, and British Honduras.

Panicum sellowii Nees. Occasional at San Agustin, Mountain Pine Ridge, (*Lundell* 6734). Rocky places, the West Indies, British Honduras, Venezuela and Brazil.

Ichnanthus lagotis (Trin.) Swallen, comb. nov.

Panicum lagotis Trin. Mem. Acad. St. Pétersb. VI. Sci. Nat. 1: 326. 1834.

Rare along roadside in limestone valley, San Antonio (*Lundell* 6941). First record in North America. Open woods and brushy borders, British Honduras; eastern Brazil.

Ichnanthus villosus Swallen, sp. nov.

Perennis; culmi erecti vel decumbentes, 90–110 cm longi, ramosi; vaginae internodiis breviores, dense villosae; ligula truncata, 0.5 mm longa; laminae lanceolatae, 8–13 cm longae, 12–20 mm latae, infra pubescentes, supra scabrae et pilosae; panicula 25 cm longa, ramis gracilibus divergentibus, ad 11 cm longis, sparsifloris; spiculae 4–4.5 mm longae, appressae; gluma prima acuta, 3-nervia, scabra; gluma secunda et lemma sterile subequalia, 5-nervia, acuta; lemma fertile 3.3 mm longum, glabrum, lucidum, appendicibus 0.7–0.8 mm longis, subhyalinis.

Perennial; culms erect or decumbent at the base and rooting at the lower nodes, 90–110 cm long, sparingly branched; sheaths shorter than the inter-

nodes, rather densely villous, ligule membranaceous, truncate, more or less ciliate, 0.5 mm long; blades lanceolate, acuminate, asymmetric, 8–13 cm long, 12–20 mm wide, softly pubescent on the lower surface, scabrous and pilose on the upper; panicle about 25 cm long, the slender branches stiffly spreading, the middle ones longest, as much as 11 cm long, with one to few branchlets at the very base; spikelets 4–4.5 mm long, appressed, usually in pairs, one on a pedicel 8–20 mm long, the other on a much shorter pedicel; first glume acute or subacuminate, 3-nerved, scabrous; second glume and sterile lemma nearly equal, acute or blunt, 5-nerved, more or less scabrous, extending well beyond the fruit; fruit 3.3 mm long, narrowly elliptic, blunt, smooth, shining, the wings subhyaline, 0.7–0.8 mm long, rather broad.

Type in the U. S. National Herbarium no. 1647573, collected in sand along creek at Vaquero, Mountain Pine Ridge, El Cayo District, British Honduras, July-August, 1936, by C. L. Lundell (no. 6852). Also collected along the Rio On, El Cayo District (*Lundell* 6785).

Ichnanthus villosus resembles *I. leiocarpus* (Spreng.) Kunth, but in that species the first glume and the fruit are as long as the second glume and sterile lemma, and the wings of the fertile lemma are more conspicuous, 1.2–1.3 mm long.

SETARIA TENAX (L. Rich.) Desv. Occasional in sandy pine-oak uplands, San Agustin, Mountain Pine Ridge (*Lundell* 6731). Open or brushy places, Mexico and the West Indies to Brazil.

ERIOCHRYSIS CAYENNENSIS Beauv. Locally abundant, San Agustin, Mountain Pine Ridge (*Lundell* 6628). Wet ground, southern Mexico and the West Indies to Paraguay.

ANDROPOGON ELLIOTTII Chapm. Common in sandy pine uplands, San Agustin, Mountain Pine Ridge (*Lundell* 6727). Occasional in wet sand in stream bed, Rio On, Mountain Pine Ridge (*Lundell* 6785). Open ground, eastern United States, Cuba, and British Honduras.

ANDROPOGON LATERALIS Nees. On granite along stream, Rio On, Mountain Pine Ridge (*Lundell* 6791). Grassy places, Cuba and British Honduras; Colombia and Brazil to Argentina.

SORGHASTRUM SETOSUM (Griseb.) Hitchc. Occasional in sandy pine uplands, San Agustin, Mountain Pine Ridge (*Lundell* 6865). In tropical pineland, Boomtown (*O'Neill* 8481). Grassy hillsides and pinelands, southern Mexico and the West Indies to Argentina.